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PATENT SPECIFICATION

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(54) IMPROVEMENTS IN RADIANT GAS-FIRED SPACE-HEATERS

(71) I, JOHN FREDERICK TREVOR, a British Subject of 80, Ashby Road, Burton-on-Trent, in the County of Stafford, do hereby declare the invention for which I pray that a patent may be granted to me and the method by which it is to be performed to be particularly described in and by the following statement:—

This invention relates to radiant gas-fired space-heaters of the kind which incorporate an area, hereinafter referred to as the heating area, of one or more radiants or heat-resisting shapes which are heated by a gas-fired burner. Such heaters are hereinafter referred to as space-heaters of the kind specified.

In space-heaters of the kind specified it has been the practice to provide metallic baffle plates of a reflective nature which bound the heating area. The baffle plates serve to direct heat issuing from the radiants or heat-resisting shapes centrally outwardly of the heating area. That part of the housing of the heater surrounding the heating area is normally of wood or painted or coated metal and the baffle plates serve to protect this part of the housing from heat damage.

When space-heaters of the kind specified have included means for providing a "coal-fire effect" the baffle plates which have been either solid or opaque have prevented illumination of the heating area by said means. As radiants are generally white in colour and thus give a cold appearance, an appearance of warmth from the heating area when the heater is not lit has not previously been easily or effectively attainable.

It is accordingly an object of the present invention to provide a space-heater of the kind specified in which the heating area thereof can be illuminated to give an appearance of warmth even when the heater is not lit and also when the heater is in a

"turned down" state, i.e. consuming less than its full rated gas capacity.

According to the present invention there is provided a radiant gas-fired space-heater of the kind specified which includes a baffle plate composed wholly or in part of translucent or transparent material which has heat-resisting properties and means for illuminating the heating area, operable independently of the gas-fired burner and positioned such that light emitted by the illuminating means is transmitted through the baffle plate to the heating area.

The invention will now be described by way of example with reference to the accompanying drawings in which:—

FIGURE 1 is a front view of a gas-fired heater,

FIGURE 2 is a side view of the heater and

FIGURE 3 is a detail view showing a baffle plate forming part of the heater.

As shown in the drawings, the space-heater includes a housing 10, a part of the front of which is open at 11 to expose a heating area constituted by a plurality of radiants 12. The radiants 12 are positioned above a gas-fired burner 13 and the products of combustion pass upwardly from the burner 13 between the radiants 12 and a refractory backing plate 14 and then pass upwardly to a flue 15 and thence to an outlet 16. The sides of the opening 11 in the front of the housing 10 are bounded by metal plates 17 to which a wire mesh 18 is attached which acts as a guard. For convenience of illustration, the mesh guard 18 has been omitted from Figure 1.

In previous gas-fired space-heaters of the kind specified the lower horizontal edge of the area 11 has been bounded by a metal baffle plate but, in a heater according to the invention, this metal baffle plate is replaced by a baffle plate 19 composed of a heat-resisting borosilicate glass or of

silica. The heat-resisting glass may be that which is sold under the registered trade mark PYREX or that sold under the registered trade mark MONAX. The baffle plate 5 is preferably of a borosilicate glass having a high silica and a high boric acid content and the baffle plate can either be in one piece or made up from a plurality of pieces. The baffle plate 19 is disposed above a part 10 20 of the front of the housing 10, the part 20 including a horizontal flange 21 which is cut away for most of its length so that the light from a lamp 22 positioned beneath the flange 21 is directed towards the baffle 15 plate 19. The baffle plate 19 is formed with an elongated slot 23 adjacent each of its ends as shown in Figure 3 and the baffle plate 19 is secured to end portions of the horizontal flange 21 by means of fixing 20 screw 24 with a heat-resisting washer 25 disposed between the head of each screw 24 and the upper surface of the baffle plate 19. By arranging for the slots 23 to be elongated, as shown in Figure 3, limited 25 expansion of the baffle plate 19 is allowed for in the mounting thereof. If the side-to-side dimension of the heating area of the heater is such that the degree of expansion or contraction of the plate 19 will be more 30 than a pre-determined amount, the baffle plate 19 will be made in two or more parts which will be arranged with spacings between adjacent edges thereof with each part of the baffle plate so mounted by means 35 of screws passing through elongated slots as to allow for expansion and contraction thereof.

As an alternative to mounting the baffle plate 19 by means of screws passing through 40 elongated slots in the baffle plate, the baffle plate may be mounted on the housing by means of clips made from a heat-resistant material.

The lamp 22 is in the form of a tube 45 and is capable of operating at elevated envelope temperatures but provision is made for a convective flow of air within the housing as indicated by the arrows in Figure 2 to effect some degree of cooling of the lamp 50 22 and thus prolong the operating life of the lamp.

The electrical connections to the lamp 22 are shielded from direct radiation from the heating area.

55 The reflectivity of the baffle plate 19 may be increased by application of a thin metal coating to the under side thereof. The thin metal coating may be of gold applied by vacuum deposition, the thickness of the 60 gold coating being such that it is not immediately visible by inspection. The applied gold coating is such that the baffle plate 19 is an effective transmitter of light in the visible region whereas it is a poor transmitter of light in the infra-red region of the 65

spectrum and this reduces the amount of radiated heat transmitted from the radians 70 12 to the lamp 22. Other metals with which the baffle plate 19 can be coated include iron, nickel and cobalt.

The baffle plate 19 serves to protect the lamp 22 and also that part of the housing bounding the lower part of the heating area and, in order to enhance the appearance of warmth from the radians, the lamp 22 75 75 may be coated with a translucent material of red or orange coloration.

In the particular construction shown in the drawings the canopy 26 of the heater includes a chamber 27 adjacent the lower 80 edge of which a further lamp 28 is positioned with the lamp 28 protected by a further baffle plate 29 which is again of a borosilicate glass or of pure silica with optionally a gold or other metal coating 85 applied to the upper surface of the baffle plate 29.

Although a construction has been shown in which there is a lamp 28 above the heating area and a lamp 22 below the heating 90 area, one of said lamps and its associated transparent or translucent baffle plate may be omitted and illumination of the heating area then obtained from a single lamp.

If desired, the source of illumination disposed beneath the heating area can form part of means for providing a "coal-fire" effect with either a constant or moving light.

WHAT I CLAIM IS:—

1. A radiant gas-fired space-heater of the kind specified which includes a baffle plate composed wholly or in part of translucent or transparent material which has heat-resisting properties and means for illuminating the heating area, operable independently of the gas-fired burner and positioned such that light emitted by the illuminating means is transmitted through the baffle plate to the heating area. 100

2. A space-heater as claimed in Claim 1 in which the baffle plate bounds the lower edge of the heating area and the illuminating means comprises a lamp positioned beneath the baffle plate. 110

3. A space-heater as claimed in Claim 1 in which the baffle plate bounds the upper edge of the heating area and the illuminating means comprises a lamp positioned above the baffle plate. 115

4. A space-heater as claimed in Claim 1 which includes a first baffle plate bounding the lower edge of the heating area and a second baffle plate bounding the upper edge of the heating area with a first lamp disposed beneath the first baffle plate and a second lamp disposed above the second baffle plate. 120 125

5. A space-heater as claimed in any preceding claim in which the or each baffle 130

plate is of borosilicate glass or of silica.

6. A space-heater as claimed in any preceding claim in which a metal coating is applied to one side of the or each baffle plate.

7. A gas-fired space heater of the type specified substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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1 SHEET

COMPLETE SPECIFICATION

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